DOCKET FILE COPY ORIGINAL

VERNER · LIIPFERT
BERNHARD · MCPHERSON AND HAND
CHARTERED

901 - 15TH STREET, N.W.
WASHINGTON, D.C. 20005-2301
(202) 371-6000
FAX: (202) 371-6279

RECEIVED
OCT 13 1998
FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

WRITER'S DIRECT DIAL
(202) 371-6206

October 13, 1998

BY HAND

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Re: Comments of Thomson Consumer Electronics Corporation in CS Docket No. 98-120

Dear Ms. Salas:

Enclosed for filing please find the original and nine (9) copies of the Comments of Thomson Consumer Electronics Corporation in the above-referenced docket.

Please stamp and return to this office with the courier the enclosed extra copy of this filing designated for that purpose. Please direct any questions that you may have to the undersigned.

Respectfully submitted,

Lawrence R. Sidman

Lawrence R. Sidman

Enclosures

No. of Copies rec'd 0+9
List ABCDE

RECEIVED

OCT 13 1998

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Carriage of the Transmissions	)	
of Digital Television Broadcast Stations	)	CS Docket No. 98-120
	)	
Amendments to Part 76	)	
of the Commission's Rules	)	

COMMENTS OF
THOMSON CONSUMER ELECTRONICS, INC.

David H. Arland
Manager, Government and
Public Relations, Americas
THOMSON CONSUMER ELECTRONICS, INC.
P.O. Box 1976, INH-110
Indianapolis, IN 46206-1976
(317) 587-4832

Lawrence R. Sidman
John M. R. Kneuer
Sara W. Morris
VERNER, LIIPFERT, BERNHARD,
MCPHERSON & HAND, CHARTERED
901 15th Street, N.W., Suite 700
Washington, D.C. 20005
(202) 371-6206

Counsel for Thomson Consumer
Electronics, Inc.

October 13, 1998

TABLE OF CONTENTS

PAGE

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	
	)	
Carriage of the Transmissions	)	
of Digital Television Broadcast Stations	)	CS Docket No. 98-120
	)	
Amendments to Part 76	)	
of the Commission's Rules	)	

COMMENTS OF
THOMSON CONSUMER ELECTRONICS, INC.

I. INTRODUCTION AND SUMMARY.

Thomson Consumer Electronics Corporation ("Thomson") respectfully submits these comments in response to the above-captioned *Notice of Proposed Rulemaking ("NPRM" or "Notice")* concerning cable television system carriage of broadcasters' digital television ("DTV") transmissions.[1/]

While the statutory trigger for this proceeding is found in the must-carry provisions of the 1992 Cable Act[2/], amending the Communications Act of 1934 ("the Act")[3/], the Commission's policy objectives are more sweeping: "The purpose of this proceeding is to seek . . . ways of providing the compatibility between digital television systems and hardware to ensure that consumers can readily receive the signals of digital television systems."[4/] Having spent more than a decade nurturing advanced television services and developing the regulatory framework and

---

1/ *Notice of Proposed Rulemaking* in CS Docket 98-120, 13 FCC Rcd 15092 (1998).

2/ Pub. L. No. 102-385, 106 Stat. 1460 (1992).

3/ *See* 47 U.S.C. § 534(b)(4)(B).

4/ *Notice* at ¶ 1.

adopting standards for free, over-the-air, terrestrial broadcast of DTV signals, this proceeding shifts the focus to cable delivery of DTV, recognizing that roughly two-thirds of American television households receive broadcast signals through cable.[5/]

As the Commission seeks to ensure that America's 65 million cable subscribers are able to make the transition to DTV with minimum disruption and maxium benefit, Thomson urges the Commission to be guided by certain, overarching principles. All cable subscribers, must have the ability, throughout the DTV transition, to access and enjoy digital television technology to its fullest potential. Cable operators should not be permitted to disappoint consumer expectations associated with substantial investments in new DTV receivers. Specifically, cable operators should not be allowed to abuse their power as a gatekeeper to limit consumers' DTV choices, either by degrading broadcasters' DTV signals, or by disabling in any way the functionality or features built into DTV receivers by consumer electronics manufacturers. Consumers must be able to make the transition to DTV in a manner that suits their own needs, not those of their cable company.

The Commission can satisfy these objectives by adopting rules in this proceeding that require:

a. Cable operators to retransmit DTV broadcast signals to their subscribers without material degradation (*i.e.*, downconverting an HDTV signal to any lower resolution digital video format must be expressly forbidden); [6/]

[5/] According to the National Cable Television Association ("NCTA"), as of March 1998, 66.23% of all television households subscribe to basic cable services. *See Current Estimates* at [http://www.ncta.com/dir_current.html].

[6/] The downconversion of a digital television format to a lower NTSC format (*i.e.*, for reception on an analog receiver) is not intended to be covered by this prohibition.

b. Cable operators to deliver to their subscribers all data transmitted by broadcasters in the entirety of their 6 MHz DTV channel, including the maintenance of program-related information within the PSIP (*i.e.*, any alteration or deletion of USER data or broadcaster-transmitted navigational information and program-related information services must be expressly forbidden).

Such rules can be grounded either in a must-carry regime or in minimum technical standards governing retransmission of broadcasters' DTV signals.

Regarding cable compatibility with DTV receivers, the Commission should follow a transitional approach which should begin by requiring that cable operators provide, in some fashion, an ATSC-compliant (*i.e.*, 8 VSB) output of all DTV signals for input to a DTV receiver. This obligation should continue until there is a universally available, reasonable alternative for consumers to obtain cable-DTV receiver compatibility. In that regard, the IEEE 1394 "firewire" standard is one approach to facilitating cable-DTV receiver interoperability, but is not a panacea. Its utility is diminished because there is currently no consensus regarding copy protection. A far more promising solution is adoption of industry standards for cable-ready DTV receivers, which would eliminate the need for a cable set top box. To the greatest extent practicable, these cable-ready DTV standards should be developed within and among accepted, open and transparent industry standard-setting and technical bodies. However, if private standards setting mechanisms fail to yield tangible results within one year, the Commission should commence a cable-ready, DTV receiver technical standard setting proceeding.

II. THOMSON HAS ESTABLISHED ITSELF AS A LEADER IN BRINGING DIGITAL VIDEO TECHNOLOGY TO AMERICAN CONSUMERS. THOMSON'S DTV PRODUCTS WILL ENABLE CONSUMERS TO REAP AFFORDABLY THE FULL BENEFITS OF DTV. THOMSON IS COMMITTED TO ENSURING ITS CUSTOMERS' FULL SATISFACTION WITH ITS DTV PRODUCTS.

Headquartered in Indianapolis, Indiana, Thomson is a major manufacturer and marketer of analog TV receivers, digital satellite TV receivers, related video hardware, and a full range of

consumer electronics products. Best known for its RCA, GE and PROSCAN brands, Thomson is the market leader in U.S. sales of color TV receivers, VCRs and, most recently, digital set-top boxes. Thomson also developed, in cooperation with DIRECTV, the first high-power direct broadcast satellite (DBS) receiving system in the United States, and has manufactured 5 million of these units since 1994. One out of every five television receivers sold in the United States is a Thomson product. Thomson employs more than 7,000 Americans working in four major manufacturing sites with research, sales and distribution facilities across the nation.

Building on its manufacturing and marketing expertise in the color television business, Thomson has established itself as an industry leader in digital television in the United States. As a member of both the Advanced Television Research Consortium and, later, the digital HDTV "Grand Alliance," Thomson has been heavily involved in the development of digital over-the-air broadcast television technology, and particularly in the design of the DTV transmission standard for terrestrial broadcasting which was adopted by the Commission at the end of 1996.

The most advanced television products ever offered by Thomson Consumer Electronics will soon be seen at key retail locations in select cities where broadcasters are initiating digital broadcasting. Thomson's digital high definition television products will be offered under the RCA and PROSCAN names in several screen sizes, including a 61-inch rear projection HDTV receiver with a full 1080-i display. Like all of Thomson's digital HDTV products, these receivers will: decode all 18 ATSC DTV formats; allow for reception and display of conventional NTSC broadcasts; allow for immediate reception of an ATSC-compliant digital cable signal (*i.e.*, one that is received either directly or from the cable set-top box in 8 VSB modulation); provide for a direct connection with all analog cable systems; and offer the combined advantage of built-in standard digital and high definition services from satellite programmers DIRECTV and United

States Satellite Broadcasting ("USSB").

By combining multiple functionality into its HDTV receivers, Thomson will eliminate the need to add additional converters or components to receive digital HDTV programming services from both broadcasters and certain satellite services. Moreover, at initial prices beginning at $7,999, Thomson's line of HDTV receivers will enable consumers to make the early leap to digital television in a manner that offers consumers maximum DTV functionality at a very competitive price which, when adjusted for inflation, is comparable to the cost of the pioneering black and white and color TV receivers.

Alternatively, for those consumers who do not wish to purchase a digital HDTV receiver, or who, in addition to purchasing such a receiver, wish to receive DTV programming on their remaining NTSC receivers throughout their homes, Thomson will offer a digital set-top box, beginning in 1999, that will allow consumers to convert the digital signals for display of a superior-quality picture on any of their current analog receivers. Like its digital receivers, Thomson's digital set-top converter box will combine abundant features -- including the ability to decode all 18 ATSC DTV formats and standard analog broadcasts, and the ability to receive digital satellite services -- for the relatively low suggested retail price of $700.

Thomson's approach to DTV -- *i.e.*, to equip consumers with products that optimally exploit the capabilities of DTV at prices which will inevitably and rather quickly move lower -- serves several very important and mutually beneficial functions, each of which will hasten the growth of a mass market for DTV, and ultimately expedite the return of broadcasters' analog spectrum. First, it preserves and facilitates broadcasters' ability to produce and transmit DTV programming according to any of the 18 different formats supported by the DTV standard, thus ensuring that consumers will be able to receive every broadcaster's DTV services. Second, it

enables consumers to make the transition to digital television in a manner that serves their own individual needs and budget and, by so doing, promotes the creation of a mass market for DTV products and services.

When Thomson's receivers reach retail stores later this year, they will come with its assurance of satisfaction to the customer. Thomson will make sure that its best customers -- *i.e,* those willing to invest thousands of dollars to create the most superior home theater experience possible -- enjoy products meeting or exceeding their highest expectations.

III. THE COMMISSION MUST ADOPT RULES IN THIS PROCEEDING WHICH MAXIMIZE CONSUMER CHOICE AND FLEXIBILITY AND PREVENT CABLE OPERATORS FROM EXERCISING BOTTLENECK CONTROL TO DENY OR RESTRICT CONSUMER ACCESS TO DTV BROADCAST SIGNALS.

After more than a decade of private research and investment, and public inquiry and regulation, a new era in entertainment and information technology that is digital television is at hand. However, unless the transition to digital television is managed skillfully, this brink of promise could become a precipice of unrealized potential. Having settled the myriad technical, regulatory, and policy issues surrounding how and when broadcasters will transmit DTV over-the-air, the Commission must now shift its focus to how to best ensure that America's 65 million cable-subscribing households will be able to access all of the benefits digital television has to offer.

In order to ensure that cable subscribers are full and equal participants in the DTV revolution, and to mitigate against the potential for cable operators to act as anticompetitive gatekeepers, the Commission should be guided by two fundamental principles. First, at every stage of the transition, consumers must have access to <u>all</u> of the benefits and services that will become available through DTV; and second, no entity or industry should be allowed to exercise bottleneck control to limit the extent to which consumers can access and enjoy digital television technology and its subsidiary benefits.

Imagine this picture: a family invests in a new $7,999 Thomson DTV receiver with full 1080-i HDTV display, brings it home, hooks it up to the cable, and finds to their horror that the programming they paid to see in HDTV is reaching their home in only ***standard*** definition because their cable operator degraded the 1080-i signal the broadcaster transmitted. It is difficult to imagine a more consumer-unfriendly scenario or one better calculated to disrupt a smooth transition to DTV.

Indeed, the potential for cable operators to act as anticompetitive DTV gatekeepers is enormous. If left unchecked, cable's ability to degrade a broadcaster's DTV signal, injecting massive confusion and frustration into consumer's attempts to access HDTV -- as well as other broadcast-transmitted navigational and informational services -- could seriously depress consumer purchases of new DTV receivers, retard market penetration of DTV receiver equipment, and, ultimately, arrest the smooth and rapid rollout of DTV.

The success of America's transition to DTV can only be assured if, throughout the transition period and beyond, consumers are confident that they will get what they pay for without interference by a cable gatekeeper. If consumers lack that confidence, and if the narrow economic interests of any entity other than the consumer is allowed to drive the transition, consumers will not embrace DTV with the enthusiasm required for a rapid transition to DTV and a return of the analog spectrum in 2006, as mandated by Congress.

To accomplish these objectives, and to thus ensure the DTV transition proceeds in a manner that is optimally consumer-friendly, Thomson urges the Commission to adopt regulations which, whether based on a cable operator's must-carry obligations, or on a set of minimal technical standards governing the retransmission of broadcasters' DTV signals:

1. Require cable operators to retransmit DTV broadcast signals without degradation of any kind (*i.e.*, in its original format); and

2. Require cable operators to carry and maintain the integrity of data contained in the entire 6 MHz broadcast channel for every DTV broadcast signal that it retransmits, including all program related and navigational data.

Likewise, to ensure that cable compatibility issues will be resolved in a manner that maximizes consumer choice and flexibility throughout the transition, Thomson urges the Commission to follow a graduated approach, adopting rules which, at the outset of the transition, require cable operators to make available, in some fashion, an 8 VSB output of DTV signals for input directly to DTV receivers, and to require such an output to exist until alternative, ubiquitous cable-DTV receiver compatibility solutions are available to consumers. Concurrently, the Commission should encourage the consumer electronics and cable industries to reach agreement on uniform and stable standards for cable-ready DTV receivers, which represent by far the most consumer-friendly approach to cable compatibility in the long-term. The Commission also should continue to encourage agreement on the IEEE 1394 standard, recognizing, however, that it is severely limited as a solution until there is consensus on a copy protection standard.

By adopting regulations that provide these essential guarantees, the Commission can ensure that the transition to digital is accomplished in an efficient, transparent, and ultimately consumer-friendly fashion.

A. The 1992 Cable Act's Prohibition Against Material Degradation of Broadcast Signals by Cable Operators Unquestionably Should be Applied to DTV.

In the 1992 Cable Act, Congress issued a clear and unambiguous edict:

> The signals of local commercial television stations that a cable operator carries shall be carried *without material degradation* (emphasis added).[7/]

7/ 47 U.S.C. §534 (b)(4)(A).

In the legislative history of the Act, Congress elaborated upon the critical importance of quality signal carriage:

> [T]he Committee believes that cable subscribers should be guaranteed quality signal transmission and that this requirement will impose a *de minimus* burden on cable operators. It will also provide certainty for the equipment industry . . . The legislation thus requires the FCC to establish minimum technical standards for all classes of video programming signals.[8/] [Emphasis added.]

Congress believed that cable operators had an obligation to consumers to deliver essentially the same quality broadcast signal as received at the cable headend.

When the Commission implemented the must-carry provisions of the 1992 Cable Act, it reaffirmed the centrality of the principle that there can be no "material degradation" of broadcast signals by cable operators.[9/] This fundamental tenet already was embedded in the Commission's rules. In its 1992 Report and Order establishing cable technical requirements, adopted by the Commission nearly eight months before enactment of the 1992 Cable Act, the Commission had required a "cable operator to take reasonable efforts and to use good engineering practices and proper equipment in the processing of each signal, guarding against *any unnecessary degradation of each signal received and delivered to the subscriber.*(emphasis added)"[10/]

The prohibition on materially degrading a broadcast signal is the foundation upon which the consumer/cable service provider relationship is built. As far back as 1972, in the infancy of

---

[8/] *Senate Report No. 102-92* (Accompanying S. 12) "Cable Television Consumer Protection and Competition Act of 1992"; 4 U.S.C.A.N. 1133, 1155 (1992).

[9/] *In the Matter of Implementation of the Cable Television Consumer Protection and Competition Act of 1992*, MM Docket No. 92-259, *Report and Order*, 8 FCC Rcd 2965, 2990 at ¶ 98 (1993).

[10/] *In the Matter of Cable Television Technical and Operational Requirements*, MM Docket No. 91-169, *Report and Order*, 7 FCC Rcd 2021, 2024 (1992) at ¶ 15.

the cable industry, the Commission adopted technical standards governing cable carriage of over-the-air broadcast signals.[11/] These standards mandated that "the [broadcast] channels delivered to [cable] subscribers conform to the capability of the television broadcast receiver."[12/] Unless a broadcast signal is delivered to the consumer in essentially the form in which it was broadcast, consumer confidence in both cable operators and equipment manufacturers would evaporate. This core concept is reflected in the Commission's technical standards for cable retransmission of broadcast signals. As such, they form an independent basis, irrespective of must-carry, for the "no material degradation" requirement.

If the Commission is to discharge its responsibility in this Congressionally mandated proceeding,[13/] it must, at an absolute minimum, ensure that cable operators do not materially degrade DTV signals transmitted by broadcasters and that they maintain the integrity of such signals.

1. The Downconversion of the Video Format of a Digital Broadcast Signal Is *Prima Facie* Material Degradation of the DTV Signal and Should Be Explicitly Prohibited.

The threshold question when considering material degradation for cable carriage of digital television signals is quite simple: Should any cable operator be permitted to convert a full high definition, 1080-i format digital broadcast signal into a lesser digital format with lower picture resolution? The answer to this question, quite simply, must be a resounding "No." In this instance, rather than employing "good engineering practices" to guard against "unnecessary degradation," a cable operator that alters an HDTV video format is taking affirmative steps to

---

[11/] *See Cable Television Report and Order*, 36 FCC 2d 143, 198, *aff'd in part and modified in part*, 36 FCC 2d 326, 359, 364 (1972).

[12/] Id.

[13/] *See* Section 614(a), (b)(4)(A), (b)(4)(B).

cause degradation of the signal. To permit a cable operator to downgrade affirmatively a 1080-i signal to standard definition would turn the entire principle of no material degradation on its head.

The harm such a perversion of the "no material degradation" requirement would do the prospects for a successful and rapid DTV transition is almost incalculable. Consumer surveys indicate that HDTV likely will be the driving consumer force behind the transition to digital television. These surveys demonstrate that consumers are excited about HDTV and look forward to the opportunity to receive the theater quality picture and CD-quality sound that HDTV delivers.[14/] The overwhelming, enthusiastic reception accorded by consumers in two Circuit City stores to the broadcast of the Texas Rangers 1998 opening game transmitted in 1080-i evidences the level of consumer excitement about HDTV.[15/]

In several Congressional hearings in 1997 and 1998, virtually all participating Members of the House and Senate Commerce Committees made crystal clear not only that they expected broadcasters to transmit HDTV signals, whether in 1080-i or 720-p, but that the availability of HDTV had factored integrally in the agreement to loan broadcasters 6 MHz of spectrum for the transition to DTV[16/]. Congress certainly would not allow cable operators to undermine that commitment by refusing to retransmit HDTV signals to consumers, and instead downconverting them to SDTV. Indeed, when TCI indicated that it might not pass through or process 1080-i DTV signals using its planned, standard digital set-top box, both the House and Senate Commerce Committees called hearings, in significant measure, to explore the dimensions of this

---

[14/] *See, e.g., Digital Television Survey Findings,* Systems Research Corporation (June 1998).

[15/] *See* Testimony of Alan McCullough Before the Subcommittee on Telecommunications Trade and Consumer Protection of the Committee on Commerce, U.S. House of Representatives, April 23, 1998.

[16/] Id; Hearing Before the Committee on Commerce, Science and Transportation, U.S. Senate, September 19, 1997.

problem.[17]

Degradation of HDTV video formats to standard definition, if permitted, would rob consumers of the ability to make a transition to DTV in a manner that suits *their* interests (such as the desire to receive HDTV), and would fly in the face of the Commission's stated policy objectives. These objectives, as outlined in the *Fourth Report and Order*, are as follows:

> 1) [T]o ensure that all affected parties have sufficient confidence and certainty to promote the smooth introduction of a free and universally available digital broadcast television service; 2) to increase the availability of new products and services to consumers through the introduction of digital broadcasting; [and] 3) to ensure that our rules encourage technological innovation and competition . . .[18]

If cable operators are permitted to downgrade an HDTV signal to a standard definition format, each of these objectives will be defeated. First, if consumers are not confident that the DTV receivers on the market will be able to receive true high definition signals via cable, they may be unwilling to invest in those products, which will retard the growth of the mass market and slow the rate at which prices for DTV equipment drops. Second, if the market for DTV receivers is artificially limited to those communities where cable operators have chosen to carry broadcasters' 1080-i signals, it will undermine the uniform, national transition to DTV and sabotage any hope of returning the analog spectrum to the government by 2006 in accordance with the mandate of the 1997 Omnibus Balanced Budget Act. Finally, technological innovation and competition will be severely hindered if broadcasters and DTV manufacturers remain subject

---

[17] *See*, e.g., Testimony of Scott Sassa Before the Subcommittee on Telecommunications Trade and Consumer Protection of the Committee on Commerce, U.S. House of Representatives, April 23, 1998; Testimony of Joseph Collins Before the Committee on Commerce, Science and Transportation, U.S. Senate, July 9, 1998.

[18] *Fourth Report and Order in* MM Docket No. 87-268, 11 FCC Rcd 17771 (1996) ("*Fourth Report and Order*") at ¶ 30.

to the consent of thousands of different cable operators for the retransmission of true HDTV.

The Commission chose not to mandate specific video formats, but rather to have such formats "tested and decided by the market."[19] In an open marketplace, consumers will decide which format is best for them. The Commission cannot allow such decisions to made by cable operators.

2. Cable Carriage of the Entire 6 MHz DTV Broadcast Channel Is Encompassed By the Prohibition Against Material Degradation of the DTV Signal.

The promise of digital television is not only an immensely improved viewing experience, but increased functionality as well. Where NTSC television is a largely static medium -- a single, receive-only transmission of one programming unit -- digital television is much more dynamic, potentially offering consumers multiple streams of programming and program-related information which may be carried, simultaneously, in a discrete segment of a broadcaster's 6 MHz DTV channel. Thomson's DTV receivers will be designed to allow consumers to enjoy fully any and all DTV services a broadcaster may wish to offer. In order to ensure that none of these services is unilaterally cut off at the cable pass, and that DTV receivers are nothing less than fully functional, it is imperative that the Commission require cable operators to carry broadcasters' 6 MHz channel in its entirety.

For example, vital channel location and content information is carried according to the Program System Information Protocols ("PSIP") adopted as an ATSC standard.[20] Because a broadcaster's digital channel assignment may be different than its well-known analog channel, consumers may have difficulty locating their preferred broadcaster's digital programming.

---

[19] *Id* at ¶ 42.

[20] *See* ATSC Document A/65 (approved December 23, 1997).

Through the receiver's use of the digital channel's PSIP, however, viewers will be linked automatically to the digital channel that corresponds to a broadcaster's current channel assignment, with which he or she is already familiar (*e.g.*, the local NBC affiliate is located on channel 4), thus minimizing consumer confusion and preserving "channel loyalty." If the PSIP portion of the DTV signal is stripped or not properly reformatted by a cable operator, DTV receivers will lose their ability to navigate consumers through the maze of digital and analog broadcast signals. Without PSIP and the program guide data it carries, consumers will be forced either to search endlessly through the entire channel band for their desired programming, or rely on and pay for proprietary electronic programming guides ("EPG") supplied by the cable operator. In some cases, elimination or improper reformatting of PSIP data may prevent the user from making a digital TV program selection. Consumers will likely balk at such a Hobson's choice.

Also included in the PSIP is broadcaster-transmitted program rating data, which will enable DTV receivers to block programming based on a common rating (the so-called "V-chip"), as required by the Telecommunications Act of 1996.[21/] If a cable operator strips a DTV signal of its PSIP data, it would, necessarily, render useless the program blocking capability of every DTV receiver it serves, thus denying parents the control over access by their children to objectionable programming and thwarting the expressed will of Congress and the Commission.

Similar to the PSIP, and equally vital to the functionality of DTV receivers -- is the portion of the DTV signal carrying "User Data," which includes closed captioning data and

---

[21/] *See* Pub. L. No. 104-104, 110 Stat. 56 (1996); *See also Report and Order*, ET Docket No. 97-206, FCC 98-36 (March 13, 1998) (specifying the technical requirements for program blocking capability for receivers (analog and DTV) with picture screens measuring 13" or larger in diameter).

emergency broadcast information. The importance of maintaining the integrity of the User Data as it proceeds from the broadcaster, through the receiver, and to its intended viewer cannot be overstated. It is therefore critical that any technical standards governing cable carriage of DTV signals include a requirement that cable operator not disturb the User Data portion of a broadcaster's DTV signal.

3. Cable Operators Must Not Be Allowed To Limit Consumers' DTV Choices By Stripping Broadcaster-Transmitted EPG Data.

Although electronic program guides or EPGs are rapidly assuming increased importance in the world of analog television, they will become virtually indispensable to consumers in the digital environment. They will play a role functionally equivalent to an analog receiver's channel dial or remote control and, as such, will be a critical tool to navigating through a 200 to 300 (or greater) channel universe simply, accurately and with a minimum of confusion imposed upon the consumer. It is critical that no gatekeeper be allowed to limit the extent to which consumers can choose among competitive EPG services, and have access to the tools which best facilitate their introduction to and use of DTV services.

Cable operators have an economic incentive to discriminate against competitive EPGs and favor those EPG services which they own or in which they hold a financial interest. This threat is not merely theoretical. Even in the analog environment, some cable operators have stripped EPG data transmitted by broadcasters in the vertical blanking interval so as to force consumers to use the cable operator's EPG service.

It is therefore critical, for the protection of consumers, the furtherance of innovation, and the development of a robustly competitive market for all navigational information services, that the Commission adopt rules in this proceeding that ensure that cable consumers have unimpeded

access to the EPG digital data broadcasters will be transmitting. The availablity of EPG data transmitted with the DTV broadcast signal does not dicate consumer use of or subscription to any particular program guide, but rather enables the consumer to choose among a competitive array of such services, including program guides offered by the cable operator. Specifically, the Commission should prohibit cable operators from altering or deleting any of the data contained in the 6 MHz channel carrying broadcaster-transmitted navigational and program-related information.

Such a prohibition would be entirely consistent with Congress's intent, embodied in Section 302 of the Telecommunications Act of 1996, which prohibits open video system ("OVS") operators from unreasonably discriminating against unaffiliated entities in the presentation of information presented to subscribers to enable them to select programming using navigational devices or on-screen guides or menus.[22/] These protections were adopted expressly to ensure that consumers not suffer the consequences of anticompetitive discrimination by gatekeepers in the area of EPGs. Given that DTV, unlike OVS systems, will eventually be available to every American consumer, the concerns addressed in Section 302 are equally applicable and even more important in the transition to digital television.

B. The Adoption of Minimum Requirements Governing Cable Carriage of DTV Signals Is Needed to Protect Consumers.

While Thomson eschews extensive regulation in this area, a set of minimum requirements, either as part of a must carry regime, or as technical standards governing cable retransmission of DTV broadcast signals, is essential to ensure that cable subscribers will have access to DTV signals and services in their fully robust form. These basic regulations can be summarized as

---

22/ *See* 47 U.S.C. §573(b)(1)(E).

follows:

1. A cable operator must make available to its subscribers all DTV signals in the format originally transmitted by the broadcaster, as received at the cable head end. Any downgrading of a DTV signal's video format to one of lesser resolution is expressly prohibited.

2. A cable operator must make available to its subscribers all DTV channels in their entirety, including the maintenance of program-specific information in the PSIP. Any alteration or deletion of any of the other data contained in the 6 MHz channel, such as User Data and broadcaster-transmitted navigational and program-related information is expressly prohibited.

C. Material Degradation of DTV Signals Can Be Detected and Measured.

The Commission also has sought comment on what tools may be available to measure the quality of digital television broadcast signals.[23] In the analog context, measurement of signal quality was generally defined by such technical measurements as amplitude characteristics, signal to noise ratios, and signal level to coherent disturbances ratios.[24] Consequently, the Commission promulgated testing requirements that quantified compliance with the Commission's standards.[25] In the digital environment, additional measurements, specific to the transmitted video formats, are necessary to safeguard against material degradation of the DTV signals. For example 1080-i has a very specific technical definition and can be measured. Consequently, a cable operator that downconverts a DTV signal from 1080-i to 480-p, for example, will have, by definition, materially degraded the signal. Likewise, a broadcaster's 6 MHz channel that has been stripped of its PSIP or User Data also will have been degraded by definition. These degradations can be detected and demonstrated using technical measurements.

---

[23] *Notice* at ¶ 63.

[24] *See Requirements Report and Order*, ¶¶ 37-43.

[25] *Id* at ¶ 53.

IV. ROME WAS NOT BUILT IN A DAY: THE COMMISSION'S APPROACH TO DTV/CABLE COMPATIBILITY SHOULD BE INCREMENTAL, FOCUSING ON HOW BEST TO PROVIDE CONSUMERS WITH THE HIGHEST QUALITY DTV SERVICES AT EVERY PHASE OF THE TRANSITION.

As the Commission is aware, the ATSC DTV standard was developed with the participation of virtually every industry sharing a role or interest in the launch of digital television -- including the cable television industry. Accordingly, the ATSC standard includes specifications for the transmission of DTV signals delivered both over-the-air (8 VSB) and via cable (16 VSB). The cable industry has chosen not to follow the ATSC modulation standard it helped develop, but instead has adopted a different and incompatible (but not necessarily better) modulation standard, using 64QAM and 256 QAM. While Thomson does not urge the Commission to prohibit the cable industry's selection of QAM over VSB, cable operators must ensure that consumers are not harmed by the cable industry's decision regarding modulation. Specifically, cable operators must bear the burden of making certain that cable subscribers have access to DTV broadcast signals throughout the DTV transition without limiting either the DTV services made available by broadcasters, or the functionality consumer electronics manufacturers build into their receivers.

A. The Commission Should Adopt a Transitional Approach in Addressing Cable Compatibility Issues, and Should Encourage Industry-Based Solutions That Assure Consumer Access to Quality DTV Signals and Maintain DTV Receiver Functionality Throughout the Transition.

As the Commission confronts the issues surrounding how best to ensure optimal compatibility between cable systems and digital television services, it is essential that it step back and recognize that, just as the existing NTSC broadcast system has developed over a period of nearly 60 years, so too will America's transition to DTV require time to unfold if it is to be done in an orderly and consumer-friendly way. Thus, the Commission should not create unrealistic expectations, particularly early in the transition, lest it thrust consumers -- and all other parties --

into a frantic and chaotic environment in which the search for the best solutions becomes lost or forgotten in the search for a solution.

To that end, Thomson urges the Commission to adopt a transitional approach to cable compatibility with DTV receivers which ensures, both in the short- and long-term, that no consumer subscribing to cable is denied either the ability to receive all available DTV signals in their intended quality and entirety, or the ability to enjoy all the receiver-based features which consumer electronics manufacturers such as Thomson will build into their receivers. A phased approach accomplishes a number of objectives critical to the success of the DTV transition. First, it ensures that consumers are assured of receiving a quality DTV signal *throughout* the transition period. Second, it allows consumer electronics manufacturers, cable operators and other parties to move beyond the point of trying to assign blame for a problem and to begin the process of resolving cable compatibility issues in a formal, open process which ultimately yields solutions that protect the integrity and functionality of consumers' DTV investments.

Thomson suggests this transitional approach include, at a minimum, the following two elements, each of which will ensure that, in the beginning and throughout the transition period, cable subscribers have access to the full array of DTV services broadcasters may wish to offer.

1. *Required Availability of an ATSC-Compliant Output by All Cable Operators.* Commencing in the early part of the transition (*i.e.*, November 1, 1998) and until such time as alternative approaches to cable compatibility are nationally and uniformily available to consumers, the FCC should require cable operators to provide an ATSC-compliant (*i.e.*, 8 VSB) output of DTV signals for input directly into a DTV receiver.

Such an output could be accomplished in a number of ways. For example, a cable operator could simply "pass through" the digital broadcast by retransmitting it, without alteration,

within the existing 6 MHz channel. At the receiver, the signal either can be "passed through" the cable set top box without change and connected to the input jack on the receiver, or the cable can be directly connected to the jack and the receiver tuned to the appropriate channel. Under this scenario, all of the functions of the digital signal would be processed to the full capability of the DTV receiver, hence preserving cable consumers' flexibility to purchase receivers that offer as many or as few capabilities as they prefer, without fear that these features will be disabled due to compatibility problems. Such an option also would be inexpensive to the cable operator (who will devote no more capacity than it would to a normal 6 MHz analog channel). This "pass through" option is presumably the way analog cable systems will handle DTV signals to ensure that they are received by early generation DTV receivers without material degradation and in their entirety.

Alternatively, the digital broadcast 8 VSB signal can be converted to the digital standard used by the cable system at the head end -- whether 256 QAM, 64 QAM, or 16 VSB -- and transmitted to the set-top box where it could be remodulated back to its original 8 VSB and fed directly to the subscriber's DTV receiver.[26] As in the case of the pass through scenario discussed above, all functions of the signal and the receiver would operate as if it were receiving the DTV signals over-the-air.[27]

How cable operators decide to accomplish such an 8 VSB compliant output may and should be left to the discretion of the individual cable operator. However, given the enormous

---

[26] Thomson supports the work of CEMA to develop standards for interfaces which translate either 64 QAM or 256 QAM into 8 VSB for input to DTV receivers (*See* EIA Document 762) and notes that work is ongoing in CEMA's R.4 Video Systems Committee to standardize such an interface for RF output to DTV receivers, in addition to addressing copy protection issues.

[27] One advantage of this method over simple pass-through, however, is that the cable transmission can utilize only 3 MHz of bandwidth on the cable, yet maintain full functionality of the broadcast signal and DTV receiver.

negative consequences that cable incompatibility may cause for consumers, particularly in the early phases of the DTV transition, the underlying requirement to provide an ATSC-compliant signal for input to a subscriber's DTV receiver should be formalized by the Commission and maintained until the Commission determines it unnecessary.[28/]

2. *Development of Standards for Cable-Ready DTV Receivers.*

The Commission should do everything in its power to facilitate the adoption of industry standards that will allow consumer electronics manufacturers to design cable-ready DTV receivers. The key to this process is agreement on a stable and uniform set of specifications to which cable operators will adhere, thus providing the requisite certainty to DTV receiver manufacturers essential to the design for mass production of cable-ready DTV receivers. Without question, the availability of truly cable-ready DTV receivers, which would eliminate entirely the need for -- and expense of -- a separate digital cable set-top box, will make DTV interoperability with cable virtually seamless and far more cost-effective for consumers. It will also enable consumer electronics manufacturers such as Thomson to implement new features and capabilities in their DTV receivers without fear of their being disabled by a set-top box. Moreover, cable-ready digital sets would cut through the signal encryption and copyright issues that continue to delay standards for interconnecting various boxes to the television set. Thomson supports the work already underway through CEMA's Cable Consumer Electronics Advisory Group (C3AG) process, which has presented the cable industry with a proposed standard for cable-ready DTV

[28/] While Thomson recognizes that the cable industry has agreed to such an output upon the initiation of digital broadcasts this fall, it urges the Commission to memorialize this commitment in its rules. Moreover, any decision by the Commission to approve cessation of the 8 VSB requirement should take into account its effect on legacy receivers, which will not be retrofittable.